Use the following to answer questions (1) through (5): Two firms, A and B, compete against by selecting an advertising strategy, with the options being to select either a low level of advertising (L) or a high level of advertising (H). The payoff matrix is indicated below:

<table>
<thead>
<tr>
<th></th>
<th>L</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>5, 5</td>
<td>0, 7</td>
</tr>
<tr>
<td>H</td>
<td>7, 0</td>
<td>1, 1</td>
</tr>
</tbody>
</table>

Note: A’s payoffs (in millions of dollars) are listed 1st, while B’s payoffs (in millions of dollars) are listed 2nd.

[1] If the above game is played once, the Nash Equilibrium is:
A. for both firms to select L.
B. for both firms to select H.
C. for one firm to select L and the other firm to select H.
D. None of the above

[2] If both firms cooperate with each other, this corresponds with:
A. both firms selecting L.
B. both firms selecting H.
C. one firm selecting L and the other firm selecting H.
D. None of the above

[3] If this game is played twice (i.e., a two-play game), coupled with each firm adopting a tit-for-tat strategy (assuming a one-period interest rate, r, of 0.25), then cooperation can be sustained across both plays of the game.
A. True
B. False

[4] If this game is played twice, coupled with each firm adopting a tit-for-tat strategy (assuming a one-period interest rate, r, of 0.25), then at the equilibrium the present value of A’s payoffs (across the two periods of play) equals:
A. 12.60
B. 9
C. 7
D. 1.80

[5] If this game is played an infinite number of times, coupled with a trigger strategy, then what value of the interest rate, r, will lead each firm to be indifferent between cooperating forever and cheating forever?
A. 2
B. 1
C. 1/2
D. 1/3
[6] In a famous song by Dionne Warwick, Dionne sings “What’s it all about Alfie? Is it just for the moment we live?”. Suppose Alfie responds, “Yes, I only care about today. The future means nothing to me.” Accordingly, from Alfie’s perspective, his discount factor equals

A. 1  
B. $\frac{1}{2}$  
C. 0  
D. -1

[7] Operating as Bertrand competitors in a differentiated product market, firms A and B face the following price-reaction functions:

Firm A: $P_A = 40 + \frac{1}{2}P_B$
Firm B: $P_B = 40 + P_A$

Accordingly, at the Nash equilibrium, A and B will price at ($P_A$ and $P_B$, respectively):

A. 100; 120  
B. 100; 140  
C. 120; 160  
D. None of the above

[8] Consider a market with two firms, A and B. Firm A’s marginal cost is: $MC_A = 100 + q_A$, while firm B’s marginal cost is: $MC_B = 100 + 2q_B$. Striking up a cartel agreement, these firms collectively decide to produce 300 units (i.e., $300 = q_A + q_B$). Wishing to maximize their joint (cartel) profit, quotas should be set such that A produces ___ units and B produces ____ units.

A. 100; 200  
B. 150; 150  
C. 200; 100  
D. 300; 0

[9] Continuing question (8), absent any punishment mechanism, if firm A sticks to its quota level of output, then firm B will wish to produce:

A. more than its quota level of output.  
B. less than its quota level of output.  
C. its quota level of output.  
D. all of the above are possible.

[10] According to the kinked demand curve model, a firm expects competing firms to increase their prices if the firm chooses to increase its price.

A. True  
B. False